

VII.—*List of Plants gathered during a short visit to Iceland in 1846.* By CHARLES C. BABINGTON, M.A., F.L.S., F.G.S. &c.\*

IT may perhaps be said that the following list of Icelandic plants is scarcely deserving of the space which it occupies, containing as it does so very few additions even to Hooker's 'Icelandic Flora' contained in his 'Tour in Iceland,' and still fewer to Vahl's 'Liste des Plantes' published in Gaimard's 'Voyage en Islande' (Min. et Géol. p. 371). That fact however is itself deserving of notice, from its proving that those parts of the island to which the researches of most botanists have been necessarily confined were very carefully examined, and that therefore M. Vahl's 'Liste' of 432 flowering plants is not a very imperfect catalogue of the Icelandic flora.

Circumstances over which I had no control restricted the time which I could devote to collecting plants in Iceland within very narrow limits,—far narrower than I had promised myself when leaving England. We landed at Reikiavic on June 29, 1846, and sailed from that port on July 13, after which day a continuance of stormy weather detained us so long off the Icelandic coast as effectually to prevent a visit which we had planned to some of the Fiords in the eastern part of the island. My collections were therefore confined to that small south-western district which was examined by several former visitants. The barren character of the country surrounding Reikiavic renders it very unpropitious to the botanist, and the long journey on horseback to and from the Geysers is not favourable to collecting.

The neighbourhood of Reikiavic consists of low hills, the surface of which is fully half covered with lumps of rock and large stones, between which the soil, although fertile in appearance and probably in reality, is often nearly devoid of vegetation; scattered plants of *Dryas octopetala*, *Lychnis alpina*, *Cerastium latifolium*, *Arenaria norvegica* and a few other species were observed. The lower grounds are very boggy, but far from rich in plants; a very few species of *Carex* and *Scirpus* occupying nearly the whole surface.

The above description will apply to a considerable portion of the country which we visited, but occasionally a small hollow occurred covered by a beautiful turf (*Festuca ovina* and *Poa pratensis* chiefly), amongst which grew rather numerous specimens of *Geranium sylvaticum*, *Orchis latifolia*, *Habenaria viridis* and *H. hyperborea*. Such spots were mostly very small. Near Thingvalla (a place of great note in Icelandic history), which is situated upon an ancient lava-current and is at a considerable distance from the sea, there is rather an extensive district of cavernous lava full

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of deep hollows and cracks upon which a much more luxuriant vegetation occurs. This is called a "forest" by the Icelanders, being well-covered with low bushes, the highest not exceeding six feet, of *Betula glutinosa*, *B. intermedia*, *B. nana* (remarkably large), and beautiful but dwarf willows, especially *Salix lanata* and *S. phylicifolia*. The neighbourhood of the Geysers does not appear to be rich in plants, nor does the hot water, which issues from the ground in a state of active ebullition, seem to hasten their growth. I could not perceive that individuals growing in the warm mud by the side of steaming currents were at all more forward than others at a distance from the heated spots. It is stated that vegetation continues on this peculiar tract throughout the year, but that the want of sun-light will not allow the plants so situated to benefit by their exemption from the frost and snow to which their neighbours are subject.

During a visit of one day to the head of Hval Fiord, a deep inlet bounded by mountains situated about forty miles towards the north from Reikiavie, I had an opportunity of examining the damp ledges on the face of a mountain of moderate elevation (estimated by us at 2500 feet), and thus learned something of the alpine vegetation. It may be observed that the slopes of the mountains are usually quite dry and therefore perfectly barren, and that it is only in the few cases where the lava is more solid or the rocks basaltic that wet spots occur. The following plants may be mentioned as inhabiting the steep and moist slope of this mountain, named Reinevalla-hals: *Draba rupestris*, *Arabis alpina*, *Silene acaulis*, *Stellaria cerastoides*, *Saxifraga rivularis*, *S. Hirculus* (also not unfrequent in the bogs), *S. nivalis* and *Veronica alpina*. On its exposed and nearly dry but peaty summit there were *Viola palustris*, *Sibbaldia procumbens*, *Alchemilla alpina*, *Andromeda hypnoides* and a few others.

There is great reason to think that a rich and almost unexplored field for botanical research exists in the northern part of Iceland. All the accounts of that part of the island describe it as by far the most fertile portion of the country. It is also believed that the eastern districts would well repay examination.

The wet climate of Iceland and its short and cloudy summer render it very unfavourable to vegetation. We could not learn from the Governor and other intelligent gentlemen that any arable land exists in the country, (unless the cultivation of potatoes in the northern district may be considered as an exception,) and attempts to grow vegetables in what may in courtesy be denominated gardens, do not seem to be often made by any of the inhabitants except those of Danish origin. On the 3rd of July the people of Reikiavie were planting out turnips in their little plots of garden ground, and potatoes were just coming up in a few

places. In the Governor's garden there were also some very fine radishes. I saw no other culinary plants except mustard and cress, unless archangel may be so considered. The cultivation of flowers does not seem to be attempted in the open ground, but a very few are preserved in pots in some of the Danish houses. In one house I noticed a carnation, a scarlet Chinese rose, mignonette, and a small fuchsia; all of them showing conspicuously that they were with difficulty preserved alive.

Hooker in his 'Tour,' and also in 'Mackenzie's Travels in Iceland,' gave as complete a list of Icelandic plants as he was able to prepare, and in the recent French work upon Iceland by M. Gaimard will be found a similar list of species compiled by M. Vahl. In the following list of the plants collected by me, the names of those few species are printed in italics which are not included in M. Vahl's list. I have also added the localities of a few of the more interesting plants. I am deeply indebted to Dr. Boott for examining and naming my specimens of *Carex*, with which difficult genus he is known to be peculiarly well acquainted, and his long-promised Monograph upon which is anxiously expected.

*List of species of Plants gathered in Iceland between June 29  
and July 13, 1846.*

*Ranunculaceæ.*

Thalictrum alpinum.  
Ranunculus aquatilis.  
Batrachium heterophyllum, *Fries.*  
R. hyperboreus.  
R. acris.  
R. repens.  
Caltha palustris.

*Cruciferæ.*

Arabis alpina.  
A. petræa.  
Cardamine hirsuta. The terminal leaflet of the lower leaves is rounder and less angular than in the British plant.  
C. pratensis.  
Draba rupestris. Reinevalla-hals.  
D. incana.  
D. incana  $\beta$ . hebecarpa, *Koch.*  
D. verna.  
Capsella Bursa-pastoris.  
Cakile maritima.

*Violaceæ.*

Viola canina.  
V. palustris.

*Caryophylleæ.*

Silene maritima.

Silene acaulis.  
Lychnis alpina.  
Sagina procumbens.  
S. nodosa, *E. Mey.*  
Spergula arvensis.  
Alsine peploides.  
A. rubella. Near Reikiavic and on Reinevalla-hals.  
Arenaria norvegica.  
A. ciliata, *Hook. Icel. Fl.*  
Stellaria cerastoides.  
S. media.  
Cerastium triviale.  
C. alpinum.

*Geraniaceæ.*

Geranium sylvaticum.

*Rosaceæ.*

Spiræa Ulmaria.  
Dryas octopetala.  
Geum rivale.  
Rubus saxatilis.  
Fragaria vesca.  
F. collina, *Vahl, Liste?*  
Potentilla Comarum.  
P. anserina.  
P. alpestris.  
P. aurea, *Hook.*  
P. maculata, *Vahl?*

- Sibbaldia procumbens. Summit of  
Reinevalla-hals.  
Alchemilla vulgaris.  
A. alpina.  
*Onagrariaceæ.*  
Epilobium montanum  $\gamma$ . humile, Bab.  
E. palustre.  
E. virgatum.  
E. alpinum.  
*Haloragææ.*  
Myriophyllum spicatum.  
Hippuris vulgaris.  
*Portulacææ.*  
Montia fontana.  
*Crassulacææ.*  
Sedum villosum.  
S. Rhodiola.  
*Saxifragææ.*  
Saxifraga stellaris.  
S. Hirculus.  
S. cæspitosa.  
S. hypnoides. Reinevalla-hals.  
S. nivalis. Descending to the sea level.  
S. rivularis. Reinevalla-hals.  
S. oppositifolia.  
Parnassia palustris.  
*Umbelliferæ.*  
Carum Carui. Thingvalla (naturalized).  
[Angelica Archangelica. I have no specimen of this, and only saw it in patches of cultivated ground.]  
*Rubiaceæ.*  
Galium boreale.  
G. verum.  
G. pusillum.  
*Compositæ.*  
Erigeron alpinus.  
Gnaphalium uliginosum.  
Oporinia autumnalis.  
O. autumnalis  $\beta$ . Taraxaci.  
Taraxacum officinale.  
Hieracium alpinum.  
H. cæsium, Fries.  
H. Lawsoni.  
Pyrethrum inodorum.  
*Ericacææ.*  
Vaccinium uliginosum.  
Arctostaphylos Uva-ursi.  
Andromeda hypnoides. Summit of  
Reinevalla-hals.  
*Calluna vulgaris.*  
*Pyrola minor.*  
*Gentianacææ.*  
Menyanthes trifoliata.  
Gentiana campestris.  
G. nivalis.  
*Boraginææ.*  
Steenhammera maritima.  
Myosotis versicolor.  
M. intermedia, Link.  
*Rhinanthacææ.*  
Rhinanthus minor.  
Bartsia alpina.  
Veronica serpillifolia.  
V. alpina. Reinevalla-hals.  
V. saxatilis. Near Reikiavik.  
*Labiataæ.*  
Thymus Serpillum, Linn., Fries, not Sm.  
Prunella vulgaris.  
Galeopsis Tetrahit.  
*Lentibularææ.*  
Pinguicula vulgaris.  
*Plumbaginææ.*  
Armeria maritima.  
*Plantaginææ.*  
Plantago maritima.  
P. major.  
*Chenopodiaceæ.*  
Atriplex patula?  
*Polygoniaceæ.*  
Polygonum viviparum.  
P. aviculare.  
Rumex domesticus. Only observed near the houses of Reikiavik.  
R. acetosella.  
R. acetosa.  
Oxyria reniformis.  
Kœnigia islandica.  
*Empetretææ.*  
Empetrum nigrum.  
*Urticacææ.*  
Urtica urens. Plentiful about the houses of Reikiavik. Believed to be an introduction; confined to one garden at the time of Hooker's visit.  
*Amentacææ.*  
Betula glutinosa.  
B. alba, Vahl? Thingvalla.



- Betula intermedia*, Thom.  
*B. fruticulosa*, Vahl? Thingvalla.  
*B. nana*. Thingvalla.  
*Salix glauca*, Linn., not Sm. Reinevalla-hals.  
*S. phylicifolia*. Thingvalla.  
*S. lanata*.  
*S. pyrenaica* var. *norvegica*, Fries. Reinevalla-hals.  
*S. herbacea*.
- Orchidaceæ.*
- Orchis latifolia*.  
*Habenaria viridis*.  
*H. hyperborea*.
- Melanthaceæ.*
- Tofieldia palustris*, Huds.
- Juncaceæ.*
- Juncus balticus*. Is this the *J. effusus* of Hooker's Fl., or *J. arcticus* of Vahl's List?  
*J. supinus*.  
*J. bufonius*.  
*J. trifidus*.  
*J. triglumis*.  
*Luzula spicata*.  
*L. multiflora*.
- Alismaceæ.*
- Triglochin palustre*.
- Aroideæ.*
- Sparganium natans*.
- Potamogetoneæ.*
- Potamogeton lanceolatus*, Sm.  
*P. nigrescens*, Fries.  
*P. filiformis*. Maria Havn, Hval Fiord.  
*Zostera angustifolia*, Reich.
- Cyperaceæ.*
- Scirpus cæspitosus*.  
*Eleocharis uniglumis*.  
*Eriophorum capitatum*.  
*E. polystachion*  $\gamma$ . *elatius*, Koch.  
*Elyna spicata*.
- Carex dioica*.  
*C. chordorhiza*. Maria Havn, Hval Fiord.  
*C. incurva*.  
*C. curta*.  
*C. atrata*.  
*C. capillaris*.  
*C. vaginata*.  
*C. rariflora*.  
*C. cryptocarpa*, Meyer.  
*C. filipendula*, Drej.  
*C. vulgaris*, Fries.  
*C. hyperborea*, Drej.  
*C. rigida*.
- Gramineæ.*
- Anthoxanthum odoratum*.  
*Alopecurus geniculatus*.  
*Phleum commutatum*.  
*Agrostis alba*.  
*Arundo stricta*. Near the Geysers and at Maria Havn, Hval Fiord.  
*Sesleria cærulea*.  
*Aira alpina*.  
*Trisetum subspicatum*  $\beta$ . *ciliatum*.  
*Poa annua*.  
*P. pratensis*.  
*P. alpina*.  
*P. Balfourii*, Parn.  
*P. cæsia*.  
*P. cæsia*  $\beta$ . *glauca*.  
*Festuca ovina*.  
*F. rubra*  $\gamma$ . *arenaria*.
- Equisetaceæ.*
- Equisetum umbrosum*. Thingvalla.  
*E. palustre*.
- Filices.*
- Polypodium Dryopteris*.  
*P. Phegopteris*.  
*Woodsia ilvensis*.  
*Athyrium Filix-fœmina*.  
*Cystopteris fragilis*  $\alpha$ .  
*C. fragilis*  $\beta$ . *dentata*.  
*Botrychium Lunaria*.
- Lycopodiaceæ.*
- Lycopodium selaginoides*.

VIII.—On the Power of the Living Plant to restrain the Evaporation of the Cell-Sap. By HUGO v. MOHL\*.

It is a known fact, attested by numerous weighings, that the living plant, when exposed to light (even diffused daylight,

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